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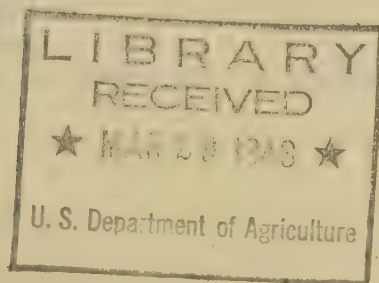






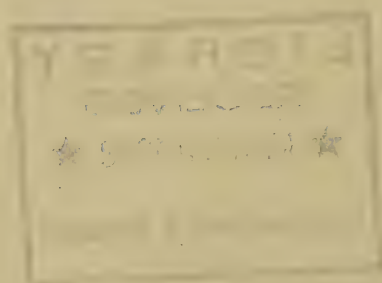
BIOGRAPHIES OF BUREAU CHIEFS.

January 1, 1924.



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Office of Director of Scientific Work.

ELMER D. BALL, Director of Scientific Work.- Born at Athens, Vermont, September 21, 1870. Raised on an Iowa farm. Educated in the Northwestern Normal and Business College, LeMars, Iowa; the Iowa State Agricultural College where he took a B.S. in entomology in 1895 and an M. S. in 1898. Held Fellowships in the Ohio State University in 1900-01 and again in 1906-07, taking a Doctor's degree in entomology and genetics. Was Assistant Entomologist in the Iowa Agricultural College 1895-97; Assistant Entomologist, Colorado Agricultural College, 1897-1902; Professor of Zoology and Entomology, Utah Agricultural College, 1902-07; Director of the Utah Experiment Station and Dean of the College of Agriculture, 1907-16; State Entomologist of Wisconsin, 1916-18; Professor of Zoology and Entomology, Iowa State College, and State Entomologist of Iowa, 1918-21; on leave as Assistant Secretary of Agriculture under Secretary Meredith from June 1920; reappointed under Secretary Wallace and resigned October 1, 1921, as Assistant Secretary and as Professor in the Iowa Agricultural College to accept present position.

Dr. Ball has published many valuable contributions to economic entomology. Among the most important are those dealing with methods of controlling grasshopper outbreaks; development of driving spray for control of codling moth; discovery of first specifically insect-transmitted plant disease, sugar beet blight, the most serious disease of the sugar beet; also discovery that tip-burn, the most serious disease of potatoes in the eastern half of the United States, was caused by a leafhopper. He is joint author of a number of publications dealing with the inheritance of egg laying in poultry. He early began a systematic study of the Homoptera and has been the leading authority on the Cercopidae (spittle insects) and one of the major workers in the classification of the Jassidae (leafhoppers) and Membracidae (treehoppers). He is a member of Sigma Xi; Phi Kappa Phi; and Gamma Sigma Delta (the Honor Society of Agriculture), of which he was national president in 1921 and 1922. He is a Fellow in the American Association for the Advancement of Science, the Entomological Society of America, the Iowa Academy of Science, the Utah Academy of Science (president, 1910), the American Association of Economic Entomologists (president, 1918), and a member of various other scientific societies, entomological, ecological, biological, and genetic, as well as a member of several committees of the National Research Council.

While acting as Assistant Secretary and Budget Officer, Dr. Ball took an active part in securing legislation providing for the better organization of the Department, increase in the salary



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WILLIAM D. BULL, Director of Scientific Work. - Born at Athens, Vermont, September 21, 1870. Raised on an Iowa farm. Educated in the Northwestern Normal and Business College, Leavenworth, Kansas; the Iowa State Agricultural College where he took a B.S. in entomology in 1892 and an M.S. in 1898. Held fellowships in the Ohio State University in 1900-01 and again in 1906-07, taking a doctor's degree in entomology and genetics. Was Assistant Entomologist in the Iowa Agricultural College 1893-97; Assistant Entomologist, Colorado Agricultural College, 1897-1902; Professor of Zoology and Entomology, Utah Agricultural College, 1902-07; Director of the Utah Experiment Station and Dean of the College of Agriculture, 1907-18; State Entomologist of Wisconsin, 1918-19; Professor of Zoology and Entomology, Iowa State College, and State Entomologist of Iowa, 1918-21; on leave as Assistant Secretary of Agriculture under Secretary Wallace from June 1920; reappointed under Secretary Wallace and resigned October 1, 1921, as Assistant Secretary and as Professor in the Iowa Agricultural College to accept present position.

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standard, and provision for a more adequate publication fund, factors which have contributed materially to the development of a better morale among the scientific workers and greater efficiency and economy in the scientific work.

The Director of Scientific Work exercises general supervision, under the direction of the Secretary, of all research and scientific work carried on by the Department of Agriculture; advises with the bureau chiefs with reference to appointment of research men; considers and approves plans and project outlines for scientific work; arranges for cooperation and coordination of the work of different bureaus of the Department and for cooperation between the Department of Agriculture and other departments of the Government and State colleges and experiment stations; considers and initiates national programs for agricultural development; selects and approves for publication scientific manuscripts submitted by the bureaus.



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### Office of Director of Regulatory Work.

WALTER G. CAMPBELL, Director of Regulatory Work.- Born in Knox County, Kentucky, November 8, 1877. Was graduated from Kentucky State University in 1902 with degree of A.B. Was employed from 1902 to 1903 as an assistant in the Division of Entomology and Botany, Kentucky Agricultural Experiment Station; transferred to the division charged with the enforcement of the State food law and stationed at Louisville, Ky. Entered the law school of the University of Louisville in 1904 and was graduated with degree of LL.B. in 1905. Formed partnership with Archibald B. Young for practice of law under the firm name of Campbell and Young in the City of Louisville and continued such practice until June, 1907. Was appointed Chief Food and Drug Inspector in the Bureau of Chemistry in 1907 to organize the inspection work in the enforcement of the Federal Food and Drugs Act. Upon reorganization of the bureau in 1914, was selected as Chief of the Eastern Food and Drug Inspection District. Was appointed Assistant Chief of the Bureau of Chemistry in 1916, and upon resignation of Doctor Alsberg as Chief in 1921 was made Acting Chief of the Bureau. On October 1, 1923, was appointed as Director of Regulatory Work of the Department.

The Director of Regulatory Work exercises general direction and control, under the Secretary of Agriculture, of the administration of all the regulatory activities of the Department of Agriculture; formulates, considers, approves, and establishes plans and policies for such activities; arranges for and directs cooperation and coordination of such activities in the different bureaus and with other departments or branches of the Government, State agencies, etc.; reviews, prepares, and approves for issuance or publication statements, notices, instructions, orders, regulations, etc., covering regulatory matters; considers matters affecting the personnel engaged in regulatory work.

Office of Director of Regulatory Work.

WALTER G. CAMBRILL, Director of Regulatory Work. - Born in Knox County, Kentucky, November 8, 1877. Was graduated from Kentucky State University in 1902 with degree of A.B. Was employed from 1902 to 1903 as an assistant in the Division of Entomology and Botany, Kentucky Agricultural Experiment Station; transferred to the division charged with the enforcement of the State food law and stationed at Louisville, Ky. Entered the law school of the University of Louisville in 1904 and was graduated with degree of LL.B. in 1905. Formed partnership with Archibald B. Young for practice of law under the firm name of Campbell and Young in the City of Louisville and continued such practice until June, 1907. Was appointed Chief Food and Drug Inspector in the Bureau of Chemistry in 1907 to organize the inspection work in the enforcement of the Federal Food and Drugs Act. Upon re-organization of the bureau in 1914, was selected as Chief of the Eastern Food and Drug Inspection District. Was appointed Assistant Chief of the Bureau of Chemistry in 1916, and upon resignation of Doctor Alsborg as Chief in 1921 was made Acting Chief of the Bureau. On October 1, 1923, was appointed as Director of Regulatory Work of the Department.

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## Office of Director of Extension Work.

CLYDE W. WARBURTON, Director of Extension Work. - Born at Independence, Iowa, December 7, 1879. Educated in rural schools and at Independence high school. Graduated from Iowa State College in 1902 with degree of B. S. A. Agricultural newspaper work in 1902. Appointed Scientific Aid in Office of Farm Management, Department of Agriculture, May, 1903. Supervised demonstration farms in Texas for Office of Farm Management in 1904-06, as Scientific Assistant and Assistant Agriculturist. Transferred to Office of Cereal Investigations, Bureau of Plant Industry, March, 1907, as Assistant Agronomist, to take charge of oat investigations. Resigned December 31, 1910, to become Editor of the Book Department of the Webb Publishing Company, St. Paul, Minnesota, and Associate Editor of "The Farmer." Returned to the Department as Agronomist in Charge of Oat Investigations, June, 1912, and continued in that position until July, 1922. Member of Departmental Committee on Seed Stocks in 1917 and 1918. In charge of purchase and resale of field seeds for spring wheat States under war emergency legislation in 1918. Represented the Department of Agriculture in administration of seed loan fund in spring wheat States in office at Great Falls, Montana, August, 1918, to September, 1919. In charge of \$2,000,000 seed loan fund, March, 1921, and of the collection activities resulting therefrom. In charge of \$1,500,000 seed loan fund, March, 1922. Acting Chairman of Departmental Committee on Seed Grain Loans, 1923. Agronomist in Charge of Cereal Agronomy, Office of Cereal Investigations, July, 1922, to September, 1923. Director of Extension Work, September, 1923.

Mr. Warburton is joint author with A. D. Willson of "Field Crops"; author of numerous Farmers' and Department Bulletins and newspaper articles. Member of American Society of Agronomy, American Association for the Advancement of Science, and Agricultural History Society. Editor of the "Journal of American Society of Agronomy," 1915 to 1921.

The Director of Extension Work supervises all extension activities of the Department, and advises with the Secretary, chiefs of bureaus, and others with regard to the formulation, consideration, and establishment of plans and policies affecting extension work and the coordination of the extension activities in the bureaus and offices of the Department. He also arranges cooperation with other Departments or branches of the Government, State agencies, etc.; supervises the preparation of statements, orders, circulars, and bulletins concerning extension activities, and has general supervision of the extension personnel. The Extension Service of the Department includes the Offices of Co-operative Extension Work, Exhibits, and Motion Pictures.



Office of Director of Extension Work.

CLYDE W. WARBURTON, Director of Extension Work. - Born at Independence, Iowa, December 7, 1873. Graduated from Iowa State College and at Independence high school. Graduated from Iowa State College in 1902 with degree of S. B. A. Agricultural newspaper work in 1903. Appointed Scientific Aid in Office of Farm Management, Department of Agriculture, May, 1903. Supervised demonstration farms in Texas for Office of Farm Management in 1904-05, as Scientific Assistant and Assistant Agriculturalist. Transferred to Office of Cereal Investigations, Bureau of Plant Industry, March, 1907, as Assistant Agronomist, to take charge of oat investigations. Resigned December 31, 1910, to become Editor of the Book Department of the Webb Publishing Company, St. Paul, Minnesota, and Associate Editor of "The Farmer." Returned to the Department as Agronomist in Charge of Oat Investigations, June, 1912, and continued in that position until July, 1922. Member of Departmental Committee on Seed Stocks in 1917 and 1918. In charge of purchase and resale of field seeds for spring wheat States under emergency legislation in 1918. Represented the Department of Agriculture in administration of seed loan fund in spring wheat States in office at Great Falls, Montana, August, 1918, to September, 1919. In charge of \$2,000,000 seed loan fund, March, 1921, and of the collection activities resulting therefrom. In charge of \$1,500,000 seed loan fund, March, 1922. Acting Chairman of Departmental Committee on Seed Grain Loans, 1922. Agronomist in Charge of Cereal Agronomy, Office of Cereal Investigations, July, 1923, to September, 1923. Director of Extension Work, September, 1923.

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### Office of Experiment Stations.

EDWIN W. ALLEN, Chief.- Born at Amherst, Mass., October 28, 1864. Received the degree of B. S. from Massachusetts Agricultural College in 1885; Assistant Chemist in Massachusetts Experiment Station, 1885-88; Graduate Student in Chemistry and Botany, University of Gottingen, 1888-90, receiving Ph.D. degree.

He was appointed in this Department as Assistant in the old Office of Experiment Stations, August 11, 1890. In 1893 he became Assistant Director and in 1899 was made Editor of Experiment Station Record, in addition to his other duties. Upon the organization of the States Relations Service in 1915, he was appointed Chief of the Office of Experiment Stations, retaining that position until the States Relations Service was dissolved in 1923, when he continued in charge of the Office of Experiment Stations as a separate unit. He was Executive Secretary of the Roosevelt Commission on Country Life in 1908; was designated as Assistant Director of Scientific Work July 1, 1923; relinquished the editorship of Experiment Station Record at the close of 1923.

He is the author of "A Compilation of Analyses of Fertilizers and Feeding Stuff", published by the Massachusetts Experiment Station, a graduation thesis on Wood Gum Xylose and Xylonic Acid (in German), Farmers' Bulletins 16 and 22, several Yearbook articles, a Review of Work in Dairying, and numerous articles and reports on the organization, administration, and work of the State experiment stations.

The Office of Experiment Stations exercises the supervision provided by law over the work and expenditures of the State agricultural experiment stations, serving as a general clearing house for the national system and assisting in various ways to promote its efficiency; it supervises the work and expenditures of the agricultural experiment stations maintained by the Department in Alaska, Hawaii, Porto Rico, Guam, and the Virgin Islands; and compiles and disseminates information regarding the progress of agricultural research through Experiment Station Record and other publications.

Office of Experiment Stations.

JOHN W. ALLEN, Chief. - Born at Amherst, Mass., October 28, 1854. Received the degree of B. S. from Massachusetts Agricultural College in 1885; Assistant Chemist in Massachusetts Experiment Station, 1885-88; Graduate Student in Chemistry and Botany, University of Göttingen, 1888-90, receiving Ph.D. degree.

He was appointed in this Department as Assistant in the old Office of Experiment Stations, August 11, 1890. In 1893 he became Assistant Director and in 1899 was made Editor of Experiment Station Record, in addition to his other duties. Upon the organization of the States Relations Service in 1915, he was appointed Chief of the Office of Experiment Stations, retaining that position until the States Relations Service was dissolved in 1925, when he continued in charge of the Office of Experiment Stations as a separate unit. He was Executive Secretary of the Roosevelt Commission on Country Life in 1908; was designated as Assistant Director of Scientific Work July 1, 1923; relinquished the editorship of Experiment Station Record at the close of 1925.

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### Office of Publications.

LYNFORD J. HAYNES, Assistant in charge.- Born at Waterford, Pa., July 22, 1886. Educated in the grade and high schools of Waterford, and later attended the Iowa State College of Agriculture and Mechanic Arts, at Ames, Iowa, for two years, pursuing a course in dairying. For a number of years was employed as a writer on agricultural subjects, especially livestock, for Wallaces Farmer; served for a time as Associate Editor of Orange Judd Farmer; from that publication he went to the Pierce Farm Weeklies, at Des Moines, Iowa.

Mr. Haynes was appointed Assistant in Information in the Department of Agriculture Nov. 1, 1921, his first assignment being the preparation of informational matter for the agricultural press based on the research and investigational activities of the Bureau of Animal Industry; was detailed to the Office of Assistant Secretary May 1, 1922, and subsequently was made Editorial Statistician, being assigned to the preparation in graphical and popular style of informational matter for the agricultural press pertaining to the activities of the Department as a whole, including the analysis and verification of agricultural data contained in manuscripts submitted for publication, editing of statistical tabulation, etc.; became Acting Assistant in Charge of the Office of Publications, September 5, 1923, with general direction of the editorial and publication work of the Department, including the personnel engaged therein, and general supervision of the Department's editorial, illustration, and distribution work and the central addressing, duplicating, and mailing section; was appointed Assistant in Charge of the Office of Publications, November 16, 1923.

The Office of Publications, a subdivision of the Office of the Secretary, has general charge of the publication activities of the Department of Agriculture as a whole. It supervises the expenditures from the general fund for printing and binding; conducts all business of the Department transacted with the Government Printing Office; and has general supervision of all editing, printing, indexing, binding, distribution of publications, and the maintenance of the mailing lists. For the use of the whole Department, it also maintains and operates a mechanical addressing system, performs duplicating work, including the mimeographing of press notices, and mails publications for official use, press notices, official circulars, etc.



Office of Publications

Mr. H. H. Hines, Assistant in Charge, - born at Watertown, N.Y., July 22, 1884. Educated in the public and high schools of Watertown, and later attended the Iowa State College of Agriculture and Veterinary Arts, at Ames, Iowa, for two years, pursuing a course in veterinary. For a number of years was employed as a writer on agricultural subjects, as editorial livestock, for Wallace Farmer; served for a time as Associate Editor of George John Farmer; from that position he went to the Ames Veterinary School, at Ames, Iowa.

Mr. Hines was a jointed Assistant in Information in the Department of Agriculture Nov. 1, 1911, his first assignment being the promotion of informational matter for the agricultural press based on the results of and investigational activities of the Bureau of Animal Industry; was detailed to the Office of Assistant Secretary, Nov. 1, 1912, and subsequently was made Editorial Assistant, being assigned to the preparation in editorial and popular style of informational matter for the agricultural press pertaining to the activities of the Department as a whole, including the analysis and verification of agricultural data contained in manuscripts submitted for publication, editing of statistical tables, etc.; became Acting Assistant in Charge of the Office of Publications, September 1, 1913, with general direction of the editorial and publication work of the Department, including the personnel engaged therein, and general supervision of the Department's editorial, illustration, and distribution work and the central addressing, tabulating, and mailing section; was appointed Assistant in Charge of the Office of Publications, November 18, 1933.

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### Press Service.

FRANK M. RUSSELL, in charge.- Born in Iowa, June 23, 1895. Attended Iowa State College four years, specializing in agricultural journalism. While a student in college acted as local correspondent for Des Moines and nearby newspapers and editor of the official college newspaper his last year. Was managing editor of Journal-Stockman at Omaha, Nebraska, for one year. In 1921 took charge of publicity work for the Nebraska Farm Bureau Federation in that State. From May, 1921, until April, 1922, was in charge of publicity in the Southwest for the U. S. Grain Growers', Inc. On April 1, 1922, was named special assistant to the Assistant Secretary of Agriculture, in charge of Press Service. On July 1, 1923, the office was placed under the immediate direction of the Secretary.

The Press Service secures the circulation in popular form of the discoveries and recommendations of the scientists, specialists, and field workers of the Department. It gives out to the public press agricultural facts taken from publications and official orders, and also from oral statements of specialists. Material so disseminated is set forth in such form as to attract public attention, be easily understandable, and lead to the adoption of the methods recommended. The office also prepares circulars, posters, and pamphlets designed to assist workers in carrying out educational and demonstration plans.



Press Service.

FRANK M. HUGHES, in charge. - Born in Iowa, June 23, 1893. Attended Iowa State College four years, specializing in agricultural journalism. While a student in college acted as local correspondent for Des Moines and nearby newspapers and editor of the official college newspaper of his last year. Was managing editor of Journal-Journalist at Omaha, Nebraska, for one year. In 1921 took charge of publicity work for the Nebraska Farm Bureau Federation in that State. From May, 1921, until April, 1922, was in charge of publicity in the Southwest for the U. S. Grain Growers' Inc. On April 1, 1922, was named special assistant to the Assistant Secretary of Agriculture, in charge of Press Service. On July 1, 1923, the office was placed under the immediate direction of the Secretary.

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### Office of the Solicitor.

ROBERT W. WILLIAMS, Solicitor.- Born at Lake Providence, La., December 5, 1877. Was graduated from the Northern Indiana Law School with degree of LL.B. Immediately after graduation he entered the private practice of law with his father at Tallahassee, Florida. In July 1907 he entered the Office of the Solicitor of the Department of Agriculture; and, in 1910, was appointed Law Officer of the Forest Service. When all the legal work of the Department was merged in the Solicitor's Office, he continued to handle the law work pertaining to the Forest Service in addition to other phases of legal work of the Department. Since 1915 he has been first assistant to the Solicitor and, in the absence of that officer, Acting Solicitor, until his present appointment April 1, 1920. He is a member of the bars of the Supreme Court of the United States and of the Supreme Court of the States of Florida and Indiana.

Mr. Williams has always taken a very keen interest in laws and legislation affecting the conservation of the wild life, especially mammals and birds. He took an active part in the negotiations for the Treaty with Great Britain for the protection of migratory birds in the United States and Canada and had a large share in the preparation of the Act of Congress of July 3, 1918, to carry the Treaty into effect.

The Solicitor is the principal legal officer of the Department and has under his direction about 45 lawyers engaged in the legal work incident to the administration of upwards of 40 comprehensive statutes, including those relating to the National Forests, Federal aid in construction and maintenance of roads, packers and stockyards, standardization of cotton, trading in grain futures on boards of trade, naval stores, importation of honeybees, cooperative marketing associations, plant quarantines, foods and drugs, insecticides and fungicides, meat inspection, cattle quarantines and transportation, importation of seeds, dealing in cotton futures on exchanges, Federal system of warehouses, grain standards, conservation of migratory birds, interstate commerce in wild animals and birds, Federal bird and mammal reservations, Federal agricultural school endowments, manufacture and shipment of viruses and toxins for the treatment of domestic animals, standard containers for fruits and vegetables, acquisition of lands for National Forest purposes, etc. The Solicitor also advises the administrative officers of the Department upon legal questions growing out of the general administration of the various bureaus and assists the Department of Justice and the United States Attorneys, upon their requests, in the preparation and trial of cases growing out of the work of the Department of Agriculture.

Office of the Solicitor

ROBERT W. WILLIAMS, Solicitor. - Born at Wake Providence, R.I., December 1, 1877. Was graduated from the Western Institute of Law School with degree of LL.B. Immediately after graduation he entered the practice of law with his father at Tallahassee, Florida. In July 1907 he entered the office of the Solicitor of the Department of Agriculture; and, in 1910, was appointed law officer of the Forest Service. When all the legal work of the Department was moved to the Solicitor's Office, he continued to handle the law work pertaining to the Forest Service. In addition to other phases of legal work of the Department, since 1911 he has been first assistant to the Solicitor and, in the absence of that officer, acting Solicitor, until his present appointment April 1, 1920. He is a member of the bars of the Supreme Court of the United States and of the Supreme Court of the States of Florida and Indiana.

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## Weather Bureau.

CHARLES F. MARVIN, Chief.- Born at Putnam, Ohio, October 7, 1858. Was graduated from Ohio State University in Mechanical Engineering in 1883. While at the University he gave instruction in the physical and mechanical laboratories and to classes in mechanical drawing. He has been connected with the Weather Bureau since September 1, 1884, when that service was a part of the Signal Corps of the Army. He has made important investigations of anemometers for the measurement of wind velocities and pressures; conducted experiments upon which the tables used by the Weather Bureau for deducing air moisture are based; invented important instruments for measuring and automatically recording rainfall, snowfall, sunshine, atmospheric pressure, evaporation, etc.; made extensive studies of the use of kites for ascertaining meteorological condition, the registration of earthquakes, the measurement of evaporation, solar radiation, temperature with electric resistance thermometers, etc.

He has contributed a number of papers treating of statistical and mathematical methods of analyzing meteorological data, with the object of laying the foundation for establishing the laws of sequence of weather conditions and the extension of the period of scientific forecasting to months and seasons in advance. In the course of these studies he has shown the advantages of the 13-month calendar and improved leap-year rules.

Professor Marvin was appointed Chief of the Weather Bureau by President Wilson with the approval of the Secretary of Agriculture and upon the recommendation of the National Academy of Sciences. This appointment was confirmed by the Senate on August 4, 1913. He was reappointed by President Harding and confirmed by the Senate on May 18, 1921.

The functions of the Chief of the Weather Bureau are stated in the Organic Act, as follows:

Sec. 3. That the Chief of the Weather Bureau, under the direction of the Secretary of Agriculture, on and after July first, eighteen hundred and ninety-one, shall have charge of the forecasting of weather, the issue of storm warnings, the display of weather and flood signals for the benefit of agriculture, commerce, and navigation, the gauging and reporting of rivers, the maintenance and operation of sea-coast telegraph lines and the collection and transmission of marine intelligence for the benefit of commerce and navigation, the reporting of temperature and rain-fall conditions for the cotton interests, the display of frost and cold-wave signals, the distribution of meteorological information in the interests of agricul-



## Weather Bureau.

CHARLES F. MARVIN, Chief. - Born at Warren, Ohio, October 7, 1858. Was graduated from Ohio State University in Mechanical Engineering in 1883. While at the University he gave instruction in the physical and mechanical laboratories and he classes in mechanical drawing. He has been connected with the Weather Bureau since September 1, 1884, when that service was a part of the Signal Corps of the Army. He has made important investigations of anemometers for the measurement of wind velocities and pressures; conducted experiments upon which the tables used by the Weather Bureau for deducing air moisture are based; invented important instruments for measuring and automatically recording rainfall, snowfall, sunshine, atmospheric pressure, evaporation, etc.; made extensive studies of the use of kites for ascertaining meteorological conditions, the registration of earthquakes, the measurement of evaporation, solar radiation, temperature with electric resistance thermometers, etc.

He has contributed a number of papers treating of statistical and mathematical methods of analyzing meteorological data, with the object of laying the foundation for establishing the laws of sequence of weather conditions and the extension of the period of scientific forecasting to months and seasons in advance. In the course of these studies he has shown the advantages of the 13-month calendar and improved leap-year rules.

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By Executive Order, Professor Marvin acts as Secretary of Agriculture in the absence of the Secretary and the Assistant Secretary.

ture and commerce, and the taking of such meteorological observations as may be necessary to establish and record the climatic conditions of the United States, or as are essential for the proper execution of the foregoing duties.

By Executive Order, Professor Lavin acts as Secretary of Agriculture in the absence of the Secretary and the Assistant Secretary.



## Bureau of Animal Industry.

JOHN R. MOHLER, Chief.- Born at Philadelphia, Pa., May 9, 1875. Received the degree of A. B. and A. M. from Temple College, Philadelphia; V. M. D. from the University of Pennsylvania in 1896; took a two years' special course at the Marquette Medical College, Milwaukee; also a special course in Alfort Veterinary College (Nocard's Laboratory) France.

He entered the service of the Department as an assistant inspector in 1897, and was promoted through the various grades, including the Chief of the Pathological Division and Assistant Chief of Bureau, until the demise of Dr. Melvin in the latter part of 1917, whom he succeeded.

Dr. Mohler is a member of the following societies: American Veterinary Medical Association; Society of the American Bacteriologists; Veterinary Medical Association of the District of Columbia; International Congress of Tuberculosis; International Congress of Hygiene; International Veterinary Congress; U. S. Live Stock Sanitary Association; Society for Experimental Biology and Medicine, and honorary member of the Veterinary Medical Association of Pennsylvania. He was appointed by the District Commissioners as a member of the committee to consider a report upon the sanitary relations of the milk supply of the District of Columbia in 1907. In 1910 he was made a member of the International Commission of the American Veterinary Medical Association on the control of bovine tuberculosis. In 1912 he was elected vice-president of the American Veterinary Medical Association and in 1913 president.

He is the author of a large number of Departmental bulletins, circulars, and miscellaneous articles on animal diseases and their treatment. In addition, he has translated into English several text books on meat inspection, milk hygiene, and special pathology and therapeutics of domestic animals.

This bureau is primarily concerned with the promotion of the livestock and meat industries of the United States. It conducts scientific investigations of the causes, prevention, and treatment of diseases of domestic animals; investigates the actual existence of communicable diseases of such animals, and aids in their control and eradication; carries on investigations and experiments in the dairy industry, animal husbandry, and the feeding and breeding of animals. It also is charged with the administration of the meat inspection act, the animal quarantine acts, the 28-hour act, the diseased animal transportation acts, the virus-serum-toxin act, and the act regulating the shipment in interstate or foreign commerce of process or renovated butter. The administration of these acts involves a vast amount of inspection and quarantine work. There are over 4,000 employees in this bureau.



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## Bureau of Plant Industry.

WILLIAM A. TAYLOR, Chief.- Born at Chelsea, Michigan, June 23, 1863. Graduated from Michigan Agricultural College in 1888 with degree of B. S. Received his doctor's degree in 1913 from the same institution. Prior to his entrance into the Government service he managed a fruit farm in Michigan. He entered the Department as an assistant pomologist in 1891, and served successively as assistant chief of the division of pomology, pomologist in charge of field investigations, and as assistant chief of bureau until his appointment as chief in March, 1913.

He is the author of numerous articles on pomological subjects, including "Influence of Refrigeration on the Fruit Industry", "Fruit Industry and Substitution of Domestic for Foreign-Grown Fruits", "The Agricultural Possibilities of the Canal Zone", "Promising New Fruits", "Little-Known Fruit Varieties Considered Worthy of Wider Dissemination", etc.

Dr. Taylor is one of the Department's most efficient administrative officers, as well as a very thorough investigator. He is recognized throughout the country as an able man in the matter of fruit varieties and one of the highest authorities on the growing, storage, shipment, and handling of fruits.

The Bureau of Plant Industry studies plant life in all its relations to agriculture. It conducts investigations of the causes, prevention, and treatment of diseases of plants, including fruit, ornamental, shade, and forest trees; investigations in crop physiology and breeding; in soil bacteriology; in plant nutrition; in soil fertility; of the acclimatization and adaptation of crop plants introduced from tropical regions, including the investigation of potential rubber-producing plants; of drug and poisonous plants; in plant physiology and fermentation; in crop technology; of fiber plants; of biophysical problems relative to plant production; in seed testing; of plants suitable for paper making; in the improvement and production of cereals; of alkali and drought-resistant crops; in economic and systematic botany; in the improvement and utilization of wild plants and grazing lands; in dry land agriculture; in the agricultural utilization of land reclaimed under the reclamation act and of other areas in arid and semiarid regions; in pomology; in horticulture; in the introduction into the United States of foreign seeds and plants; of forage crops; of cotton; of tobacco; of flax; of broomcorn; of sugar beets and other sugar plants. This bureau is also in charge of the experiment farm at Arlington, Virginia, and the administration of the Seed Importation Act.



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### Forest Service.

WILLIAM B. GREELEY, Forester.- Born at Oswego, N. Y., September 6, 1879. Was graduated from the University of California with degree of B. L. in 1901; and from Yale Forest School with degree of M. F. in 1904.

Colonel Greeley entered the Forest Service as a Forest Assistant in 1904 and was appointed Chief Forester in March, 1920. His first assignment in the Forest Service was a technical study of the important southern hardwoods. In 1905 he was assigned to administrative work on the National Forests, filling successively the positions of Timber Sale Inspector in California, Supervisor of the Sequoia National Forest, California, and District Forester in charge of the National Forests in Montana and northern Idaho. In 1911, he was assigned to the headquarters of the Forest Service in Washington, D. C., as Assistant Forester in charge of timber sales and other silvicultural operations on the National Forests, a position which he filled until his selection as Chief Forester in 1920, with the exception of a little over two years of military service.

Immediately after the declaration of war against Germany in 1917, Colonel Greeley's time was devoted actively to the organization of war purchases of lumber and recruiting forestry regiments for work overseas. From August, 1917, until July, 1919, he was on duty with the American Expeditionary Force, first as Major and later as Lieutenant-Colonel of Engineers. He largely organized the forestry operations of the American engineer troops in France and during his last year with the American Army was Chief of the Forestry Section. This duty involved the direction of 21,000 forestry troops and 95 timber-cutting operations in France.

Colonel Greeley is the author of a number of bulletins on forestry and forest economics and on the furnishing of timber for military operations. He is a Fellow of the Society of American Foresters; Member of the Washington Academy of Sciences; Director of the American Forestry Association; and Lieutenant-Colonel of Engineers in the Officers Reserve Corps. His work in the Forestry Section of the American Expeditionary Force was recognized by awards of the American Distinguished Service Medal, the Cross of the French Legion of Honor, in the grade of Chevalier, and the Cross of the Distinguished Service Order of Great Britain.

The Forest Service administers the National Forests; cooperates with States in maintaining organized protection of forest lands against fire; conducts investigations in the entire field of forestry, including economic and industrial as well as forest

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research; diffuses information relating to the best use of forests and forest products; and, in short, seeks to promote the application of forestry throughout the country on both public and privately-owned lands, together with efficient and economical use of their yields. The National Forests comprise approximately 157 million acres of Government-owned land and contain approximately one-fifth of the timber in the United States, besides furnishing forage and recreation resources of great public value. Their administration aims to coordinate and develop to the utmost their use in the best public interest, through application of the technical methods of forestry as a subdivision of the art of agriculture. Sustained and, where possible, increased yields of water, timber, and livestock products are secured, along with provision for many other forms of use, under carefully devised management plans and systematic protection of the Forests against fire and other destructive agencies. The management plans employ the scientific regulation of timber cutting and livestock grazing as means for securing reforestation and range conservation, along with full use of the annual growth obtained through such regulation. The personnel of the Forest Service numbers approximately 2700.

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## Bureau of Chemistry.

CHARLES ALBERT BROWNE, Acting Chief.-- Born at North Adams, Mass., August 12, 1870. After graduating from the local Academy and High School entered Williams College, Mass., in 1888, from which he received the degree of A. B. in 1892. From 1892 until 1895 was assistant chemist in the analytical and consulting laboratory of John S. Adriance at 231 Broadway, New York City. From 1895 until 1896 was instructor in Chemistry at the Pennsylvania State College, State College, Pa. In 1896 received the A. M. degree from Williams College, Mass., for a thesis upon diazo dyes. From 1896 until 1900 was assistant chemist at the Pennsylvania Agricultural Experiment Station. From 1900 until 1902 did advanced work in agricultural chemistry, agricultural bacteriology, agriculture, plant physiology, and physics at Gottingen University, Germany, from which he received the A.M. and Ph.D. degrees. After returning to Pennsylvania State College for a few months he accepted in 1902 the position of research chemist at the Louisiana Sugar Experiment Station, where he continued until 1906. From March to June, 1906, was official delegate of the United States at the meetings of the Sixth International Congress of Applied Chemistry at Rome, Italy, and inspected agricultural operations in Italy, Sicily, Greece, and other European countries. From July, 1906, to October, 1907, was Chief of the Sugar Laboratory of the U. S. Bureau of Chemistry, Washington, D. C. From October, 1907, to October, 1923, was Chemist in Charge of the New York Sugar Trade Laboratory, Inc., at 80 South Street, New York City. On October 1, 1923, assumed duties as Acting Chief of the U. S. Bureau of Chemistry.

He has been a referee of the Association of Official Agricultural Chemists on numerous occasions and was elected vice president of the organization in 1923. He was associate editor of the Journal of the American Chemical Society from 1911 to 1922 and associate editor of the Journal of Industrial and Engineering Chemistry from 1911 to 1917. He was Chairman of the New York Section of the American Chemical Society in 1923, Chairman of the Section of Sugar Chemistry and Technology from 1919 to 1921, and Chairman of the Section of Historical Chemistry from 1921 to 1923. He is also a counsellor at large of the American Chemical Society and a corresponding member of the Societe des Chimistes de Sucrerie de France. He was Secretary of the Section of Sugar Chemistry at the eighth meeting of the International Congress of Applied Chemistry in New York in 1912. He is the author of a Handbook of Sugar Analysis, New York, 1912; Sugar Tables for Laboratory Use, New York, 1912, and of over one hundred bulletins and miscellaneous scientific and technical papers upon agricultural-chemical and related subjects.

History of Research

Dr. ALBERT E. L. ... born in 1903 ...  
... August 12, 1903 ...  
... received the degree of B.S. in 1923 ...  
... was assistant chemist in the analytical and chemical ...  
... laboratory of John S. Edwards at 221 Broadway, New York ...  
... From 1928 until 1930 was instructor in Chemistry at the ...  
... Pennsylvania State College, State College, Pa. In 1930 received ...  
... the A.M. degree from Illinois College, Urbana, Ill. for a thesis ...  
... upon glass types. From 1930 until 1935 was assistant chemist ...  
... at the Pennsylvania Agricultural Experiment Station. From 1935 ...  
... until 1938 did advanced work in experimental chemistry, physical ...  
... and physiology, at the University of Illinois, Urbana, Ill. ...  
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The Bureau of Chemistry applies the science of chemistry to the improvement of agriculture, develops processes for the utilization of agricultural products, and makes biological investigations of foods and drugs, including their physiological effects on the human organism. It conducts experiments on the utilization, for coloring, medicinal, and technical purposes, of raw materials grown or produced in the United States. This bureau also develops improved processes for grading, weighing, handling, transporting, and utilizing rosin and turpentine. It conducts investigations for the development of methods of manufacturing insecticides and fungicides and studies chemical problems relating to the composition, action, and application of insecticides and fungicides. It improves methods for dehydrating materials used for foods. It develops means to prevent grain-dust, smut-dust, and other plant-dust explosions and resulting fires, including fires in cotton gins and cotton-oil mills. The bureau enforces the Federal Food and Drugs Act, commonly called the pure food law, the Tea Inspection Act, and the recently enacted Naval Stores Act. It analyzes samples and, in cooperation with other Department agencies, makes chemical investigations necessary in the enforcement of the Insecticide Act. It makes chemical tests and investigations for other Government departments, especially of foods and drugs for the Army and Navy.



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## Bureau of Soils.

MILTON WHITNEY, Chief. - Born at Baltimore, Md., August 2, 1860. Common school education; three years special course, Johns Hopkins University. Assistant Chemist at the Connecticut Agricultural Experiment Station, 1883. Superintendent of Experiment Farm, North Carolina Experiment Station, 1886 to 1888. Professor of Agriculture, University of South Carolina and Vice-Director of the South Carolina Experiment Station, 1888 to 1891. Soil Physicist of the Maryland Experiment Station, 1891 to 1894. In 1894 was appointed to his present position as Chief of the Bureau of Soils. Author of numerous reports on soil physics and the relation of soils to agriculture.

The Bureau of Soils conducts surveys of soils for the purpose of classifying soil types and determining the agriculture suitable to the various types; maps soils; studies and classifies agricultural lands in the National Forests; investigates the relations of soils to climatic conditions and plant growth; determines the physical and chemical composition and properties of soils and their relations to productivity; investigates the fertilizer resources of the United States; studies the compatability and mixing of fertilizer materials and their suitability for use; investigates methods of preparing fertilizer compounds, and determines the value of other soil amendments.



Bureau of Soils.

WILSON WHITNEY, Chief. - Born at Baltimore, Md., August 2, 1860. Common school education; three years special course, Johns Hopkins University. Assistant Chemist at the Connecticut Agricultural Experiment Station, 1883. Superintendent of Experiment Farm, North Carolina Experiment Station, 1885 to 1888. Professor of Agriculture, University of North Carolina and Vice-Director of the South Carolina Experiment Station, 1888 to 1891. Soil Physicist of the Maryland Experiment Station, 1891 to 1894. In 1894 was appointed to his present position as Chief of the Bureau of Soils. Author of numerous reports on soil physics and the relation of soils to agriculture.

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Bureau of Entomology.

LELAND O. HOWARD, Chief.- Born at Rockford, Illinois, June 11, 1857. Was graduated from Cornell University in 1877, and took one year's post-graduate work, specializing in entomology. In November, 1878, was appointed Assistant Entomologist in the Department of Agriculture and held that position until June, 1894, when he was made Chief of the Division of Entomology, which was subsequently made a bureau. He has served continuously in the Department since 1878. He has achieved eminence in the scientific world through the work which he has done for the Department and has been given the degrees of Ph.D., M.D., Sc.D., and LL.D.; has been made honorary member of more than 20 foreign societies and academies, and is a member of the American Academy of Science and Arts, the American Philosophical Society, and the National Academy of Sciences, in addition to many other American societies. He has been Permanent Secretary of the American Association for the Advancement of Science for the past 22 years, and in 1920 was made President (one of the highest honors in American Science).

His entire scientific effort has been devoted to economic entomology, and he has been a successful leader and administrator of the Bureau of Entomology, which is acknowledged to be the leading organization in the world in applied entomology. The value of his work and that of the Bureau which he has directed to American agriculture is beyond estimate. In addition to agricultural entomology, he has paid special attention to medical entomology and has published two books and many bulletins and articles on this aspect of the subject. The list of Dr. Howard's published books, bulletins, and other scientific writings comprises more than 800 titles, not including 350 papers of which he was joint author.

The Bureau of Entomology conducts investigations relating to economic entomology, the history and habits of insects injurious and beneficial to agriculture, horticulture, and arboriculture, insects affecting the health of man and domestic animals, and the best means of destroying those found to be injurious. It is also engaged in checking the spread of the gipsy and brown-tail moths, the Japanese beetle, European corn borer, etc.



Howard O. Howard

HOWARD O. HOWARD, Chief. - Born at Rockford, Illinois, June 11, 1887. The graduate from Cornell University in 1910, and took the year's post-graduate work, specializing in entomology. In 1910, 1911, 1912, was appointed Assistant Entomologist in the Department of Agriculture and held that position until 1914, when he was made Chief of the Division of Entomology, which was subsequently made a Bureau. He has received numerous awards in the Department since 1910. He has received entrance to the scientific world through the work which he has done for the Department and has been given the degree of D.Sc., M.D., D.C., and D.L.S.; has been made an honorary member of more than 10 foreign societies and academies, and is a member of the American Academy of Science and Arts, the American Philosophical Society, and the National Academy of Sciences. In addition to many other American societies. He has been permanent Secretary of the American Association for the Advancement of Science for the past 15 years, and in 1910 was made President (one of the highest honors in American Science).

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## Bureau of Biological Survey.

EDWARD W. NELSON, Chief.- Born at Manchester, N. H., May 8, 1855. Has been in the service of the Department since November 1, 1890. Has devoted his entire life to the study of natural history. From 1877 to 1881 he made scientific explorations in Alaska for the purpose of studying its wild life. He served as naturalist of the U.S. revenue steamer Corwin during her cruise on the Arctic search expedition for the "Jeannette" in 1881. In this Department he served as chief field naturalist from 1907 to 1912, and as assistant in charge of biological investigations from 1913 to 1914. On August 16, 1914, he was appointed assistant chief of the bureau, and on December 1, 1916, was made chief.

Mr. Nelson was president of the American Ornithologists' Union, 1908-09; president of the Biological Society of Washington, 1912-13; vice president of the Washington Academy of Sciences, 1912-13; president of the American Society of Mammologists, 1921-23. He is a Fellow of the American Association for the Advancement of Science; honorary life member of the National Geographic Society; honorary member of the California Academy of Sciences and of the Cooper Ornithological Club; and corresponding member of the Society of Natural History of Mexico. He has conducted scientific explorations in Mexico and in other countries, and is the author of many publications on wild life, including a report on "Natural History Collections made in Alaska", "The Eskimos About Bering Straits", "Birds of Bering Sea and the Arctic Ocean", "Squirrels of Mexico", "Wild Animals of North America", and "Lower California and Its Natural Resources."

The Bureau of Biological Survey studies the distribution and habits of native wild life, makes biological surveys of areas, and maps the natural life zones of the country; investigates the relation of wild birds and animals to agriculture and stock raising, with a view to the control of the harmful and the conservation of the useful species; conducts campaigns for the extermination of predatory wild animals, destructive rodents, and other injurious forms; experiments in fur farming, and studies the diseases to which fur bearers are subject in captivity; investigates Alaskan reindeer management; administers Federal big-game and bird reservations--including the Montana National Bison Range, the Winter Elk Refuge in Wyoming, the Sullys Hill National Game Preserve in North Dakota, the Wind Cave Preserve in South Dakota, and the Niobrara Reservation in Nebraska, maintained primarily for big game, but on which birds also are protected, and 63 additional refuges set aside by Executive Order for waterfowl and other birds throughout the United States and in Porto Rico, Hawaii, and Alaska; and administers Federal laws relating to migratory game, nongame, and insectivorous birds, importations of foreign wild birds and animals, interstate commerce in wild birds and game, and Alaskan land fur-bearing animals.



Summary of Biological Survey

EDWARD W. WILSON, Chief. - Born at Manchester, N. H., May 6, 1869. Has been in the service of the Department since November 1, 1890. Has devoted his entire life to the study of natural history. From 1897 to 1901 he made scientific expeditions in Alaska for the purpose of studying its wild life. He served as naturalist of the U. S. revenue steamer Corwin during his cruise on the Arctic arch expedition for the "Government" in 1891. In this Department he served as chief field naturalist from 1907 to 1912, and as assistant in charge of biological investigations from 1912 to 1914. On August 16, 1914, he was appointed assistant chief of the Bureau, and on December 1, 1916, was made chief.

Mr. Wilson was president of the American Ornithologists' Union, 1908-09; president of the Biological Society of Washington, 1910-11; vice president of the Washington Academy of Sciences, 1912-13; president of the American Society of Mammalogists, 1913-14. He is a fellow of the American Association for the Advancement of Science; honorary life member of the National Geographic Society; honorary member of the California Academy of Sciences and of the Cooper Ornithological Club; and corresponding member of the Society of Natural History of Mexico. He has conducted scientific explorations in Mexico and in other countries, and is the author of many publications on wild life, including a report on "Natural History Collections made in Alaska," "The Fisheries about Berlin Straits," "Birds of Alaska and the Arctic Ocean," "Mammals of Alaska," "Wild animals of North America," and "Lower California and its Natural Resources."

The Bureau of Biological Survey studies the distribution and habits of native wild life, makes biological surveys of areas, and maps the natural life zones of the country; investigates the relations of wild birds and animals to agriculture and stock raising, with a view to the control of the harmful and the conservation of the useful species; conducts campaigns for the extermination of predatory wild animals, destructive rodents, and other injurious forms; experiments in fur raising, and studies the diseases to which fur-bearing animals are subject in captivity; investigates Alaskan reindeer management; administers Federal big-game and bird reservations--including the Denali National Game Preserve, the Wrangell-St. Elias National Game Preserve in North Dakota, and the Theodore Roosevelt National Game Preserve in North Dakota. It also administers Federal laws relating to migratory game, mammals, and insectivorous birds, and other birds and other forms throughout the United States and in foreign lands, and Alaska and Alaska land fur-bearing animals.

### Division of Accounts and Disbursements.

A. ZAPPONE, Chief.- Born in the District of Columbia, November 4, 1862. He attended the graded and high schools of the District and in 1882 entered the Signal Corps of the Army, serving as a private, corporal, and sergeant. In 1891, when the weather work of the Signal Corps was transferred to the Department of Agriculture, he came to this Department as a member of that staff.

Mr. Zappone has been connected with the Disbursing Office of the Department since 1893, first as Assistant and later as Chief of the Division. In addition to being Disbursing Officer of the Department and Chief of the Division of Accounts, he is Chairman of the Advisory Committee on Finance and Business Methods and is considered one of the best informed and most experienced accountants in the Government service. In 1907, he served as a representative of the Department of Agriculture on the Committee on Grades and Salaries in the Executive Departments (Keep Commission), and in 1911 as a representative of the Department on the Commission on Economy and Efficiency (Cleveland Commission). In 1917, he assisted the Federal Board for Vocational Education in inaugurating its financial system and acted as disbursing clerk for a short period. He is responsible, in large measure, for the development of the fiscal, administrative, and property regulations of the Department.

The Division of Accounts and Disbursements has charge of the disbursement of public funds appropriated for the Department of Agriculture and the keeping of accounts and appropriate ledgers in connection therewith. It also keeps the general ledgers of the Department, affecting appropriations, apportionments, reserves, and expenditures; maintains the record of deductions from employees' salaries under the Civil Service Retirement and Disability Act; prepares the classification of expenditures prescribed by the Comptroller General; and compiles the annual estimates of appropriations under the direction of the Budget Officer.



Division of Accounts and Disbursements.

A. ZAPONE, Chief. - Born in the District of Columbia, November 4, 1881. He attended the graded and high schools of the District and in 1903 entered the United States Army, serving as a private, corporal, and sergeant. In 1901, when the war with the Philippines was transferred to the Department of Agriculture, he came to this Department as a member of that staff.

Mr. Zapone has been connected with the Accounting Office of the Department since 1903, first as assistant and later as Chief of the Division. In addition to being District Officer of the Division, he is also Chief of the Division of Accounts, Chairman of the Advisory Committee on Finance and Business Methods and is considered one of the best informed and most experienced accountants in the Government service. In 1917, he served as representative of the Department of Agriculture on the Committee on Finance and Disbursements in the Executive Department (House Committee) and in 1911 as a representative of the Department on the Committee on Economy and Efficiency (Cleveland Commission). In 1917, he assisted the Federal Board for Vocational Education in investigating its financial system and acted as district officer for a short period. He is responsible, in large measure, for the development of the fiscal, administrative, and property regulations of the Department.

The Division of Accounts and Disbursements has charge of the disbursement of public funds appropriated for the Department of Agriculture and the paying of accounts and appropriate salaries in connection therewith. It also keeps the general ledger of the Department, including agricultural, experimental, research, and administrative; maintaining the record of disbursements from employees' salaries under the Civil Service Retirement and Disability Act; prepares the classification of expenditures prescribed by the Comptroller General; and compiles the annual estimates of appropriations under the direction of the Budget Officer.

### Library.

CLARIBEL R. BARNETT, Librarian.- Born at Kent, Ohio, March 26, 1872. Prepared for College at Western Reserve Academy, Hudson, Ohio. Received degree of Bachelor of Philosophy from University of Michigan, Ann Arbor, in 1893, having specialized in Latin and German. Subsequent to graduation from college, she spent two years at the New York State Library School, Albany, and received the degree of Bachelor of Library Science.

On May 18, 1895, was appointed a cataloguer in the Library of the U. S. Department of Agriculture, under Wm. P. Cutter, Librarian, serving in this position until May, 1900. On April 1, 1901, she was promoted to the position of Assistant Librarian, and on July 1, 1907, was appointed Librarian.

Miss Barnett has written a number of articles for library journals. She served as 2d-Vice President of the American Library Association in 1922 and was a member of the Library Advisory Wage Committee of the Joint Commission on Reclassification of Government Salaries.

The Librarian has general supervision over all the library work of the Department. The Library, with its branch libraries in the various bureaus, contains 170,000 volumes and receives currently 3,000 periodicals. The dictionary card catalogue of the main Library contains a half million cards, exclusive of the several extensive special indexes which are maintained by the various bureau libraries. These together form the most extensive bibliography of agriculture and the related sciences available in this country. The Library engages in interlibrary loans with the State agricultural colleges and experiment stations and with other research institutions throughout the country and endeavors in various ways to serve as the national agricultural library.



Library.

CLAUDE E. BARNETT, Librarian. - Born at West, Ohio, March 26, 1882. Graduated at College of Western Reserve University, Cleveland, Ohio. Received degree of Bachelor of Library Science from University of Chicago, Ann Arbor, in 1906, having specialized in Latin and Greek. Served as Librarian of the University of Chicago from 1906 to 1907 and as Librarian of the New York State Library School, Albany, and received the degree of Bachelor of Library Science.

On May 18, 1895, was appointed a cataloguer in the library of the U. S. Department of Agriculture, under Mr. E. C. Butler, Librarian, serving in this position until May, 1900. On July 1, 1901, she was promoted to the position of Assistant Librarian, and on July 1, 1907, was appointed Librarian.

Miss Barnett has written a number of articles for library journals. She served as Ex-Vice President of the American Library Association in 1903 and was a member of the Library Advisory and Committee of the Joint Commission on Educational Institution of Government salaries.

The Librarian has general supervision over all the library work of the Department. The library, which the branch libraries in the various bureaus, contains 100,000 volumes and receives annually 3,000 periodicals. The dictionary and catalogue of the main library contains a half million cards, exclusive of the several extensive special indexes which are maintained by the various bureau libraries. These together form the most extensive bibliography of agriculture and the related sciences available in this country. The library carries in its collection with the basic fundamental sciences and experiment stations and with other research institutions throughout the country and endeavors in various ways to serve as the national agricultural library.

## Bureau of Public Roads.

THOMAS H. MACDONALD, Chief.-- Born in Colorado, July 23, 1881. Graduated from the Iowa State College in Civil Engineering and was employed by the Chicago Great Western Railroad for a time on track work. In 1904 he became Assistant Professor of Civil Engineering at the Iowa State College and was placed in charge of road investigation work. In 1906 was appointed Highway Engineer with the first Highway Commission in Iowa and held this position until 1913 when he was made Chief Engineer of the Iowa State Highway Commission. He was also Supervisor of State Roads, having charge of all highways and streets adjoining or upon State farms, State institutions, and the State Capitol at Des Moines. He is a member of the Executive Committee of the American Association of State Highway Officials. He entered upon his duties in the Department of Agriculture on May 3, 1919.

The engineering work of the Department of Agriculture is handled by the Bureau of Public Roads. The work is divided into two main branches--highway engineering and agricultural engineering.

The highway engineering branch deals with the investigation of road management, road building and maintenance, and road material problems, besides the work of administering the appropriations for the construction of Federal-aid roads and forest roads and trails. The Federal-aid program has involved up to the present time (February, 1924) a total Federal fund of \$540,000,000, either appropriated or authorized. As the Federal funds must be matched, except in certain public land States, by equal contributions from the States (and the States are actually contributing about 57 per cent of the cost), the work involves supervision of the expenditure of a billion and a quarter dollars.

The agricultural engineering branch conducts investigations of farm irrigation and drainage, farm machinery, farm buildings, and other rural engineering problems.



Summary of Public Roads.

WILLIAM E. HARRIS, Chief. - Born in Colorado, July 28, 1881. Graduated from the Iowa State College in 1901. He was employed by the Chicago Great Western Railroad for a time as track work. In 1902 he became assistant engineer of the Iowa State College and was placed in charge of road investigation work. In 1903 was appointed Highway Engineer with the first Highway Commission in Iowa and held this position until 1912 when he was made Chief Engineer of the Iowa State Highway Commission. He was also supervisor of State Roads, having charge of all highways and streets existing on that date. He is State Engineer, and the State Capital at Des Moines. He is a member of the Executive Committee of the American Association of State Highway Officials. He served upon his duties in the Department of Agriculture on May 3, 1919.

The engineering work of the Department of Agriculture is handled by the Bureau of Public Roads. The work is divided into two main branches--highway engineering and structural engineering.

The highway engineering branch deals with the investigation of road management, road building and maintenance, and road material problems. Besides the work of administering the expenditures for the construction of federal-aid roads and forest roads and trails. The federal-aid program has involved up to the present time (\$100,000,000) a total federal fund of \$40,000,000, either appropriated or authorized. In the federal funds must be matched, one cent in certain public land states, by equal contributions from the states (and the states are actually contributing about 57 per cent of the cost). The work involves supervision of the expenditures of a billion and a quarter dollars.

The structural engineering branch handles structural problems of farm buildings and bridges, farm machinery, farm buildings, and other rural engineering problems.

## Bureau of Agricultural Economics.

HENRY C. TAYLOR, Chief.- Born in Iowa, April 16, 1873. He attended Drake University 1891-94; graduated from the Iowa Agricultural College in 1896, and received his Doctor's degree from the University of Wisconsin in 1902. He also pursued special courses of study at the London School of Economics; Halle-Wertemberg University, and the University of Berlin. During his training he specialized in economics, not only in this country but abroad. He established the Department of Agricultural Economics in the College of Agriculture at Madison, Wisconsin, in 1906, and served as its head from that date to the time of his appointment in this Department as Chief of the Office of Farm Management, April 1, 1919. He was one of the organizers of and has always been an active leader in the American Farm Management Association, which is now known as the American Farm Economics Association. Dr. Taylor has been a leader in the development of research in this field. At an early date he personally conducted investigations which attracted the attention of agricultural people in all parts of the United States.

He served in an advisory capacity for the United States Bureau of the Census, 1900, 1910, and 1920, assisting in the preparation of schedules and in the expansion of the work relating to agriculture. Dr. Taylor has contributed a large volume of permanent literature to the subject of agricultural economics. His early works of importance were: "The Differential Rent of Farm Lands" (Quarterly Journal of Economics), 1903; "The Decline of Land Owning Farmers in England", 1904.

His "Introduction to the Study of Agricultural Economics", 1905, was the first comprehensive text dealing with this new subject. It has since been used extensively in colleges and by the general public. It appeared in revised form as "Agricultural Economics" in 1919. Results of his research work appear in various bulletins, especially those published by the Wisconsin Agricultural Experiment Station and the United States Department of Agriculture, such as: "Methods of Renting Farm Land in Wisconsin", 1910; "The Place of Economics in Agricultural Education and Research", 1911; "The Prices of Farm Products", 1911; "The Marketing of Wisconsin Cheese", 1913; "The Marketing of Wisconsin Potatoes", 1915; "Price Fixing and Cost of Farm Products", 1918.

Dr. Taylor has been an outstanding leader in the development of teaching and research on the subject of farm management and in the development of the relation of this subject to the broader subject of agricultural economics, including plans of production, establishing and forecasting, standardization, supply and demand, and marketing.



Bureau of Agricultural Economics.

HENRY C. TAYLOR, Chief. -- Born in Iowa, April 18, 1873. He attended Drake University 1891-94; graduated from the Iowa Agricultural College in 1895, and received his Doctor's degree from the University of Wisconsin in 1902. He also received special courses of study at the London School of Economics; Halle-Berlin University, and the University of Berlin. During his training he specialized in economics, not only in this country but abroad. He established the Department of Agricultural Economics in the College of Agriculture at Madison, Wisconsin, in 1906, and served as its head from that date to the time of his appointment in this Department as Chief of the Office of Farm Management, April 1, 1919. He was one of the organizers of and has always been an active leader in the American Farm Economics Association, which is now known as the American Farm Economics Association. Dr. Taylor has been a leader in the development of research in this field. At an early date he personally conducted investigations which attracted the attention of agricultural people in all parts of the United States.

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Dr. Taylor has been an outstanding leader in the development of teaching and research on the subject of farm management and in the development of the relation of this subject to the broader subject of agricultural economics, including plans of production, establishing and forecasting, standardization, supply and demand, and marketing.

The Bureau of Agricultural Economics combines the work of three previous units: Bureau of Crop Estimates, Bureau of Markets, and Office of Farm Management and Farm Economics. Thus is brought together the work relating to farm economics from the planting of the farm, production plans, management of the farm, and farm records through the adjustment of production to the demands of the market, forecasting of crops, forecasting of the actual marketing of the commodities produced, and the services connected with marketing, such as crop reports, standardization, news services on the various commodities, shipping point and market inspection, and studies and recommendations regarding different systems of marketing the various farm commodities. This Bureau is charged with the enforcement of the United States Cotton Futures Act, the United States Grain Standards Act, the United States Warehouse Act, and the United States Standard Container Act.



The Bureau of Agricultural Economics considers the work of  
two previous units: Bureau of Crop Estimates, Bureau of Statistics,  
and Office of Farm Management and Farm Economics. This is brought  
together the work relating to farm economics from the Bureau of  
the farm, production plans, management of the farm, and farm records  
through the adjustment of production to the demands of the market,  
forecasting of crops, forecasting of the actual marketing of the  
products produced, and the services connected with marketing,  
such as crop reports, standardization, news services on the various  
commodities, shipping points and market inspection, and similar and  
recommendations regarding all these aspects of marketing the various  
farm commodities. This Bureau is charged with the enforcement of the  
United States Grain Futures Act, the United States Grain Standards  
Act, the United States Warehouse Act, and the United States Gravel  
Container Act.

## Bureau of Home Economics.

LOUISE STANLEY, Chief.- Born at Nashville, Tennessee, June 8, 1883. Lived on a farm until 22 years of age. Was graduated from University of Nashville in 1903, with B. S. degree; Bachelor of Education, University of Chicago, 1906; Master of Arts, Columbia University, 1907; Doctor of Philosophy, specializing in physiological chemistry, Yale University, 1911. Instructor, Assistant Professor, Associate Professor in Home Economics, and Chairman of Department, University of Missouri, 1907-09, 1910-1918, 1919-1923. Studied at Yale University, 1909-10. During the spring of 1914 made a special study of home economics in the southern high schools for the Department of Agriculture. During 1918-1919 was Special Agent for Home Economics Education with the Federal Board for Vocational Education, visiting the teacher training institutions and typical high schools in 19 southern and western States. Taught during summer terms, University of Southern California, Los Angeles, 1918; University of California, Berkeley, 1920; Washington State College, Pullman, 1922; Southern Branch, University of California, Los Angeles, 1923.

Dr. Stanley is the author of various bulletins issued by the University of Missouri and of articles published in the Journal of Home Economics; also of Laboratory Manual for Teaching Selection and Preparation of Food (multigraphed), University of Missouri.

The Bureau of Home Economics conducts scientific studies of problems connected with the home. It assists the homemaker in the solution of these problems through the compilation of helpful information from various sources and by making this information available through Farmers' Bulletins. Various problems not being studied by any other agency are being investigated by the bureau. The results of these investigations are published in the form of technical bulletins. The bureau employs no field agents but its popular bulletins and the results of its investigations are sent out through the home demonstration agents and made available to the State colleges.

The work of the Bureau of Home Economics is to be developed through six divisions--(1) Food and Nutrition, (2) Economics, (3) Textiles and Clothing, (4) Housing and Equipment, (5) Home Relationships, and (6) Arts in Home Life. Work under the last two divisions will not be started until after July, 1925. In each of these divisions the problems must be considered from the points of view of home production and home consumption.



History of Home Economics

LEWIS, MARY, (1867-1933). Born at Nashville, Tennessee, June 8, 1867. Lived on a farm until 18 years of age. Was educated at the University of Nashville in 1903, with B. S. degree; Bachelor of Education, University of Chicago, 1908; Master of Arts, Columbia University, 1907; Doctor of Philosophy, specializing in physical chemistry, Yale University, 1911. Instructor, Assistant Professor, Associate Professor in Home Economics, and Chairman of Department, University of Missouri, 1907-08, 1910-1912, 1913-1922. Studied at Yale University, 1909-11. During the spring of 1914 made a special study of home economics in the southern high schools for the Department of Agriculture. During 1918-1919 was Special Agent for Home Economics Education with the Federal Board for Vocational Education, visiting the teacher training institutions and typical high schools in 19 southern and western states. Taught during summer terms, University of Southern California, Los Angeles, 1918; University of California, Berkeley, 1920; Washburn State College, Wilson, 1921; Southern Branch, University of California, Los Angeles, 1923.

Dr. Lewis is the author of various bulletins issued by the University of Missouri and of articles published in the Journal of Home Economics; also of Laboratory Manual for Teaching Selection and Preparation of Food (unpublished), University of Missouri.

The Bureau of Home Economics conducts scientific studies of problems connected with the home. It assists the housemaker in the solution of these problems through the compilation of helpful information from various sources and by making this information available through Farmers' Bulletins. Various problems not being studied by any other agency are being investigated by the Bureau. The results of these investigations are published in the form of technical bulletins. The Bureau employs no field agents but its popular bulletins and the results of its investigations are sent out through the home demonstration agents and made available to the State colleges.

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## Insecticide and Fungicide Board.

JOHN K. HAYWOOD, Chairman.- Born at Raleigh, N. C., December 19, 1874. Received the degree of B. S., Cornell University; M. D., George Washington University. Prior to his entry into the Department, he served as Assistant Chemist in the Cornell Experiment Station; as Teacher of Chemistry in the University Preparatory School of Ithaca, New York; and later as Assistant Instructor at Cornell University. Dr. Haywood has had wide experience in the analyses of and chemical investigations relative to various products handled by the Bureau of Chemistry, especially insecticides, fungicides, cattle foods, waters, and trade wastes. At one time he had general supervision of the Water Laboratory. He has done valuable work in the development, analysis, and chemical investigation of insecticides, fungicides, waters, and cattle foods; in the development of methods of detecting adulterants of insecticides and fungicides; in the preparation of new insecticides and fungicides, and in investigations of the causes for and chemical changes involved in injury to the host plant by insecticides and fungicides. He entered the service of the Department of Agriculture in 1897 and was made Chairman of the Insecticide and Fungicide Board February 1, 1913.

He has been Vice President and President of the Association of Feed Control Officials; referee on waters, cattle foods, and insecticides; and Vice President and President of the Association of Official Agricultural Chemists; Chairman of the Committee of Revision of Chemical Methods for that Association; Chairman of the Water and Soft Drink Jury of Awards at the St. Louis Exposition; and Delegate to the Second Pan-American Congress representing the Association of Feed Control Officials. He has been for several years, and now is, a member of the Executive Committee of the Association of Feed Control Officials. He is author of about 40 articles and bulletins on subjects pertaining to chemistry. In addition to his duties as Chairman of the Insecticide and Fungicide Board, he is Chief of the Miscellaneous Division of the Bureau of Chemistry, which includes the Insecticide and Fungicide Laboratory and the Cattle Food and Grain Investigation Laboratory.

The Insecticide and Fungicide Board is charged with the administration of the Act to prevent manufacture, sale or transportation of adulterated or misbranded Paris greens, lead arsenates, and other insecticides and fungicides and for regulating traffic in these articles.



Resumé of the Career of Dr. J. K. Haywood

JOHN K. HAYWOOD, Chairman. - Born at Raleigh, N. C., December 19, 1874. Received the degree of B. S., Cornell University; M. D., George Washington University. Prior to his entry into the Government service he served as Assistant in the Cornell Experiment Station; as Teacher of Chemistry in the University Preparatory School of Ithaca, New York; and later as Assistant Instructor at Cornell University. Dr. Haywood has had wide experience in the analyses of and chemical investigations relative to various products handled by the Bureau of Chemistry, especially insecticides, fungicides, and trade wastes. At one time he had general supervision of the water supply of the city of Ithaca. He has been actively engaged in the investigation of insecticides, fungicides, and chemical investigation of insecticides, fungicides, and trade wastes; in the development of methods of detecting adulterants of insecticides and fungicides; in the preparation of new insecticides and fungicides, and in investigations of the toxicity of chemical compounds. He entered the service of the Government of Agriculture in 1917 and was assigned to the Division of Insecticides and Fungicides Board February 1, 1918.

He has been Vice President and President of the Association of Food Control Officials; referee on waters, cattle foods, and insecticides; and Vice President and President of the Association of Official Agricultural Chemists; Chairman of the Division of Division of Chemical Analysis for the National Bureau of Standards; Water and Soft Drink Jury of Awards at the St. Louis Exposition; and Referee on the Food and Drug Administration. He has been for several years a member of the Executive Committee of the Association of Food Control Officials. He is author of about 40 articles and bulletins on subjects pertaining to chemistry. In addition to his duties as Chairman of the Insecticide and Fungicide Board, he is Chief of the Insecticide Division of the Bureau of Chemistry, which includes the Insecticide and Fungicide Laboratory and the Fungicide Laboratory.

The Insecticide and Fungicide Board is concerned with the regulation of the use of insecticides and fungicides, and the investigation of claims of effectiveness of insecticides and fungicides, and other insecticides and fungicides and for regulating traffic in these articles.

### Federal Horticultural Board.

CHARLES L. MARLATT, Chairman of the Federal Horticultural Board and Associate Chief of the Bureau of Entomology.- Born in Kansas, September 26, 1863. Graduate of the Kansas Agricultural College, B.S. 1884, M.S. 1886, D. Sc. 1921. Assistant Professor of Entomology and Horticulture at that institution, 1887-1888. Was first appointed in the Department of Agriculture January 1, 1889, as a Field Agent for the Bureau of Entomology. Is the author of some 200 papers and bulletins on systematic and economic entomology. As Associate Chief of the Bureau of Entomology assists in the general administration of the work of the Bureau and is in particular charge of its regulatory activities.

As Chairman of the Federal Horticultural Board he has supervised the enforcement of the Plant Quarantine Act since 1912, and this is now his major responsibility.

Dr. Marlatt was President of the Entomological Society of Washington, 1897-8, and of the Association of Economic Entomologists, 1899. He is a member of the American Association for the Advancement of Science, of the Washington Academy of Sciences, and of various other scientific societies in the United States and other countries.

The Federal Horticultural Board is charged with the regulation of the importation of plants and plant products, including nursery stock, fruits, vegetables, cotton, and other plants and plant products necessary to exclude new and dangerous plant pests. This Board is also charged with the regulation of the movement within the United States of any plant or plant product or other article necessary to prevent the spread of new plant pests which have more or less limited foothold. For these purposes the Board is now administering 24 foreign plant quarantines and orders and 15 domestic plant quarantines. It also administers a number of special appropriations for the purpose of controlling or eradicating new pests such as the pink bollworm of cotton and potato wart disease, and cooperates with the Bureaus of Entomology and Plant Industry in quarantine control work under similar appropriations made to those bureaus covering such pests as the European corn borer, Japanese beetle, gipsy moth and brown-tail moth, black stem rust of wheat, and pine blister rust.



Federal Horticultural Board

CHARLES L. MARSHALL, Chairman of the Federal Horticultural Board and Associate Chief of the Bureau of Entomology. - Born in Kansas, September 28, 1883. Graduate of the Kansas Agricultural College, 1905. M.S. 1907, Ph.D. 1911. Assistant Professor of Entomology and Horticulture at that institution. 1887-1888. Was first appointed in the Department of Agriculture. 1905, as a field agent for the Bureau of Entomology. Is the author of some 200 papers and articles on systematic and economic entomology. He is also Chief of the Bureau of Entomology and is the central organization of the work of the Bureau and is in particular charge of its research activities.

As Chairman of the Federal Horticultural Board he has supervised the enforcement of the Plant Quarantine Act since 1912, and this is now his major responsibility.

Dr. Marshall was President of the Entomological Society of Washington, 1897-8, and of the Association of Economic Entomologists, 1909. He is a member of the Entomological Society of America, of the Washington Academy of Sciences, and of various other scientific societies in the United States and other countries.

The Federal Horticultural Board is charged with the regulation of the importation of plants and plant products, including nursery stock, fruits, vegetables, etc., and other plants and plant products necessary to include new and dangerous plant pests. This Board is also charged with the regulation of the movement within the United States of any plant or plant product in other species necessary to prevent the spread of new plant pests which have or have limited footholds. For these purposes the Board is now administering 15 foreign plant quarantine and orders and 15 domestic plant quarantines. It also administers a number of special regulations for the purpose of controlling or restricting new pests such as the pink bollworm of cotton and potato wart disease, and cooperates with the Bureau of Entomology and Plant Industry in maintaining control over other similar regulations made to those known as covering such pests as the European corn borer, Japanese beetle, alfalfa moth and brown-tail moth, black stem rust of wheat, and pine blister rust.

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Packers and Stockyards Administration.  
Grain Futures Administration.

CHESTER MORRILL, Assistant to the Secretary, in charge.-- Born in Shelby County, near Clarence, Missouri, August 22, 1885. Educated in public and private schools in Washington, D. C. Graduated from Georgetown University in 1909 with degree of LL.B. Admitted to bar of the District of Columbia and Tennessee in 1909. Employed by Southern Railway, 1899 to 1909, in auditing department and as reporter to general counsel in law department. Local counsel for Southern Railway Company and engaged in general practice of law at Knoxville, Tenn., 1909 to 1914; clerk, Bureau of Animal Industry, Department of Agriculture, 1914; Assistant to the Solicitor, Department of Agriculture, 1914 to 1919; supervisor of enforcement of U. S. Cotton Futures Act and acting in charge cotton marketing division, Bureau of Markets, Department of Agriculture, 1919-1920; Assistant to the Chief and acting in charge warehouse division, Bureau of Markets, Department of Agriculture, 1920-1921; Assistant Chief, in charge of all service and regulatory work, Bureau of Markets, Department of Agriculture, 1921; official representative of the United States Department of Agriculture, 1921, at the World's Cotton Conference at Liverpool and Manchester, England, and in negotiations in various countries in Europe looking to an agreement upon universal cotton standards; Assistant to the Secretary of Agriculture, in charge Packers and Stockyards Administration and Grain Futures Administration, 1921 to date.

During service as Assistant to the Solicitor, and in Bureau of Markets, gave special attention to drafting of legislation and regulations and to questions of law and policy connected with the Cotton Futures Act, Warehouse Act, Grain Standards Act, Standard Container Act, collection and distribution of excess wool profits, 1918, standardization of grades for agricultural products, inspection and certification of quality and condition of food products, and war-time activities such as food supply surveys, supervision of stockyards, regulation of the sale and distribution of farm implements and machinery, fertilizers, etc., and other matters.

As Assistant to the Secretary has acted in advisory capacity to the Bureau of Agricultural Economics (successor to Bureau of Markets) in many of these matters, and in connection with the drafting and enforcement of the U. S. Cotton Standards Act and the Capper-Volstead cooperative marketing law and the consideration of Federal cold storage legislation.

The Packers and Stockyards Administration is a distinct unit of the Department of Agriculture, separate from any other bureau. It is charged with carrying out the provisions of the Packers and Stockyards Act of August 15, 1921, relating to the supervision of the business in interstate commerce of meat packers,



GRAIN TRADES ADMINISTRATION  
1921 TO DATE

WILLIAM W. WHELAN, Assistant to the Secretary, is charged with the duties of the Grain Trades Administration, created by Executive Order, August 12, 1921. Prior to 1921, the duties of the Grain Trades Administration were performed by the Bureau of Plant Industry, Department of Agriculture, which was created by Executive Order, August 12, 1921. The Grain Trades Administration was created by Executive Order, August 12, 1921, and is now a part of the Department of Agriculture. The Grain Trades Administration is responsible for the regulation of the grain trade, and for the enforcement of the laws relating to the grain trade. The Grain Trades Administration is also responsible for the collection of statistics relating to the grain trade, and for the dissemination of information relating to the grain trade. The Grain Trades Administration is also responsible for the enforcement of the laws relating to the grain trade, and for the collection of statistics relating to the grain trade. The Grain Trades Administration is also responsible for the dissemination of information relating to the grain trade, and for the enforcement of the laws relating to the grain trade.

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public stockyards markets, and commission men, traders, and other agencies operating in the public stockyard markets of the United States. Such duties include supervision of the business conduct and practices in interstate commerce of such agencies and the determination of rates and charges for service rendered in the public stockyard markets. The Packers and Stockyards Act was declared constitutional by the Supreme Court of the United States in May, 1922.

The Grain Futures Administration is a distinct unit, separate from any other bureau of the Department of Agriculture, except that the same officer is in charge of both the Grain Futures Administration and the Packers and Stockyards Administration. The Grain Futures Administration is charged with carrying out the provisions of the Grain Futures Act of September 21, 1922. This Act was preceded by the Future Trading Act of August 24, 1921, the regulatory provisions of which were declared by the United States Supreme Court to be unconstitutional. The Grain Futures Act of September 21, 1922, was upheld as constitutional by the Supreme Court of the United States in April, 1923. It brings under the supervision of the Federal Government certain phases of the business conducted on all grain future exchanges in the United States. This law requires that adequate records be kept by members of these exchanges of all transactions in grain for both cash and future delivery, that such records shall be subject to inspection by the Federal Government; that reports respecting such transactions shall be made to the Secretary of Agriculture upon request; that the dissemination of false and misleading information about crop and market conditions be prevented; that manipulation or attempts to manipulate or corner the grain futures markets be suppressed; prohibits discrimination by grain future exchanges against cooperative associations of producers who desire membership and who agree to meet the conditions lawfully required of other members, except in respect to patronage dividends; and provides for investigation and dissemination of information concerning grain marketing.



grain marketing boards, and marketing boards, and other  
agencies operating in the grain marketing business of the United  
States. Such boards include representatives of the business community  
and producers in interstate commerce of such grains and the  
determination of rates and charges for services rendered in the grain  
business. The Federal and State Boards are not deemed  
constituted by the Supreme Court of the United States in May,  
1933.

The Grain Marketing Administration is a distinct unit, separate  
from any other branch of the Department of Agriculture, which has  
the same effect as the change of title from Grain Marketing  
Administration to the Federal Grain Marketing Administration. The  
Administration is charged with carrying out the provisions of the  
Grain Marketing Act of September 21, 1933. This Act was amended by  
the Federal Grain Marketing Act of August 24, 1934, and the Federal Grain  
Marketing Act of October 11, 1935, which were amended by the Federal Grain  
Marketing Act of October 11, 1935. The Grain Marketing Act of October 11, 1935,  
as amended, is hereby approved by the Supreme Court of the United  
States in April, 1935. It provides for the supervision of the  
Federal Government certain phases of the business conducted on all  
grain future contracts in the United States. This law requires that  
all future contracts be kept by members of these exchanges of all grain-  
related information for both cash and future delivery, that such records  
shall be subject to inspection by the Federal Government; that  
reports respecting such transactions shall be made to the Secretary  
of Agriculture upon request; that the dissemination of false and  
misleading information about crop and market conditions be pre-  
vented; that limitation of efforts to manipulate or corner the  
grain futures market be suppressed; prohibitive discrimination by  
grain future exchanges against cooperative associations of producers  
and dealers operating and who agree to meet the conditions lawfully  
required of other members, except in respect to percentage dividends;  
and provides for investigation and dissemination of information  
concerning grain marketing.

### Fixed Nitrogen Research Laboratory.

FREDERICK G. COTTRELL, Director.- Born at Oakland, California, January 10, 1877. Received primary education at the Horton Private School, Oakland, and secondary education at Oakland Public High School. Entered University of California in August 1893, graduating with the degree of B.S. from the College of Chemistry in May 1896. Spent one year in graduate study there as Le Conte Fellow, specializing in Chemistry, Physics, and Electrical Engineering. Teacher of Chemistry at the Oakland High School, 1897-1900, where in addition to Chemistry also assisted in instruction in Physics and Plant Physiology, continuing at the same time some graduate work at the University of California, and some instruction especially in Electrochemistry. From June, 1900, to September, 1902, was in Europe pursuing studies in Physical Chemistry and related subjects. First semester, University of Berlin, working especially in the private laboratory of Professor J. H. van't Hoff on problems connected with the Staussfurt salt deposits. Three semesters in the University of Leipzig, particularly under Professor William Ostwald, from which institution received the degree of Ph.D., majoring in Physical Chemistry, minors in Physics under Professor L. Boltzman, and Crystallography under Professor Zirkel. Also spent one summer in the Cavendish Laboratory at Cambridge, England, under Professor J. J. Thompson, returning September, 1902, spending a couple of months at Harvard University, then returned to the University of California as Instructor in Physical Chemistry. Remained there in that capacity, later as Assistant Professor of Physical Chemistry, until summer of 1911. During this time worked on the initial states of electrical precipitation of the smelter-fume problem, which was then an acute issue between the smelting interests and the farmers of California.

In the summer of 1911 Dr. Cottrell left the University of California and joined the staff of the U. S. Bureau of Mines as Chief Physical Chemist, with headquarters in San Francisco, primarily specializing upon the smelter-fume problem, of which the Anaconda case in Montana and the Selby smelter in California were those coming most directly under intensive Government study. Was appointed Chief Chemist, Bureau of Mines, July 1, 1914; Chief Metallurgist, January 1, 1916; Assistant Director, September 1, 1919, and Director, June 2, 1920. Resigned as Director January 1, 1921. Retained headquarters at San Francisco until after the close of the Panama-Pacific Exposition, there being in charge of the Bureau of Mines exhibit. Afterwards came to Washington and was in charge of the organization of the Bureau of





Mines Experiments Stations throughout the country. During the war he specialized more particularly upon the problem of helium production, which was largely under the direction of the Bureau of Mines, for the Army and Navy. From February to August, 1919, Dr. Cottrell was in Europe as Chairman of a small commission sent by the Bureau of Mines to investigate mining and metallurgical conditions in the devastated areas and cooperating with other Government agencies then in Europe. In this connection travelled extensively in Europe on behalf of the Economic Division of the American Peace Commission, visiting particularly the Oppau nitrogen fixation works near Ludwigshafen, the Skoda Steel Works in Czechoslovakia, and the Lardarello Volcanic Steam Plant in Italy. From December 31, 1920, to January 1, 1921, served as Chairman of the Division of Chemistry and Chemical Technology of the National Research Council, while still Director of the U.S. Bureau of Mines. From January 1, 1921 to June 30, 1922, after resigning from the Bureau of Mines, devoted full time to the Chairmanship of the Division of Chemistry and Chemical Technology, National Research Council.

On September 15, 1922, Dr. Cottrell was appointed Consulting Chemist of the Fixed Nitrogen Research Laboratory, Department of Agriculture, and on September 20, 1922, was appointed Director of that Laboratory.

The Fixed Nitrogen Research Laboratory studies the processes of fixation and utilization of atmospheric nitrogen, with special reference to the problems of agriculture and the national defense. It was established under the Ordnance Division of the War Department, March 29, 1919, and transferred to the Department of Agriculture July 1, 1921. It has at present (February, 1924) a personnel of about 75, of whom about 35 are scientifically trained investigators. It attempts to follow as far as possible the work being done in research and development of nitrogen fixation resources throughout the world and codify and make available this information, as well as carry on independent investigations with respect to the efficacy and economy of different processes of nitrogen fixation, the development of new processes and the improvement of old ones, and clarification of the fundamental scientific facts and theories underlying such processes. Through its Engineering Division, the Laboratory also attempts to carry its new improvements or inventions into sufficiently concrete industrial development to make them readily understandable and available to the industry, and in every way possible to facilitate the growth and development of the nitrogen fixation and fertilizer industry in the United States.



Director of that laboratory.

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